STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
MARINE RESOURCES OPERATIONS

REPORT FOR THE MONTH OF MAY 1960

The ocean shrimp season opened May 1. The fleet concentrated in the Ft. Bragg area (B1) where fishing proved excellent. The Department anticipated that the quota of 300,000 pounds would be reached by the end of the month and announced that the area would close at midnight May 31.

On May 27 the U. S. Fish and Wildlife Service boat BLACK DOUGLAS took the first albacore, an 8-pounder, of the current season some 60 miles west of Guadalupe Island. The N. B. SCOFIELD, on an exploratory albacore cruise farther north, had not located fish at the month's end.

Most of the mackerel fleet remained at the dock because of a drop in price coupled with a scarcity of fish.

In offshore seismic exploration for oil during the month, 251 "shots" of EP 198 were detonated (4,218 pounds of explosives). Twenty-three separate fish kills were observed involving from 10 to 25,000 fish, primarily anchovies but including also Pacific mackerel, jack mackerel and rockfish.

The tsunami resulting from the Chilean earthquake caused considerable damage in northern California and seriously curtailed fishing.

A. NORTHERN CALIFORNIA INVESTIGATIONS (Apr. 26-May 25, 1960 inclusive)

1. Bottomfish

Industry

Flatfish: Fishing was generally fair to good during the first half of the month. Strong northwest winds, heavy seas, and tsunamis combined to curtail effort during the latter half of May.

Dover sole predominated in the northern part of the state with fair results reported inside of 200 fathoms from Mack Arch, Oregon to Eel River, California.

San Francisco landings were mixed sole with English predominating.

Rockfish: Landings were spotty in northern California. Best areas were Morro Bay and Santa Barbara. Fishing effort has been increasing in the Channel Islands area with deliveries to these ports. Some of this fish is trucked as far as Monterey for processing.

Research

Flatfish: Market sampling was carried out in Eureka, Ft. Bragg, and San Francisco. Animal food landings were sampled at these ports plus Morro Bay.

Calculations of optimum sample size for English sole landed at Eureka were completed.

Tagged English sole continue to be returned from the Eureka area. The May recoveries were all in the general area where released in December 1958.

The Coast Oyster Company, which has engaged in a seining program as a method of bat ray control, caught two California halibut (Paralichthys californicus) and one round sting ray (Urolophus halleri) in Arcata Bay.

2. Shellfish

Industry

Abalone: Bad weather has kept the Morro Bay fleet at the dock almost the entire month. This has been one of the poorest May productions on record for this area.

Crab: The San Francisco area season ended May 31. Prior to this, landings had dropped due to poor fishing and fishermen turning to other interests. In Eureka and Crescent City some fishermen have converted their vessels for salmon. The remainder are fishing in relatively shallow water where their gear is extremely vulnerable to storms. Crab prices to the fishermen have ranged from 20¢ per pound in Eureka and Crescent City to 24¢ in San Francisco. Many crabbers in the Crescent

City area have not fished crab since May 21 because of the tsunami which forced them to lie outside until the May 26 "all clear" was received.

Oysters: On 9 May Mr. Walter Dahlstrom made a trip to Greenport, Long Island, to inspect a shipment of shell oysters which were trucked to Tomales Bay. A large number of oyster drills were present on the bed from which the oysters were dredged. Intensive cleaning and sorting was necessary to get rid of these pests. Help in the inspection work was given by the shellfish biologist of the State of New York. It was pointed out to the purchaser that moving the oysters earlier in the season would greatly reduce the work of sorting.

Shrimp: The season started May 1. Nearly all of the shrimp landed were small. The boats fishing out of Bodega Bay moved to Ft. Bragg after the first few days and at present no boats are shrimping at Bodega or Morro. Landings at Ft. Bragg are such that the quota is expected to be reached on or before May 31, at which time this area (B-1) will be closed. Landings in Crescent City remain low with no shrimping since the 21st because of the tsunami which sank one boat and forced the others to move outside the bay where they waited for an "all clear" received May 26.

Research

Abalone: Weather that restricted the commercial divers also kept the Abalone Investigation's vessel MOLLUSK in port. On May 23 a series of dives were made north of Pt. Estero. Conditions for observations were limited by effects of currents and dirty water. This was the first day of the month that conditions were even partly favorable for diving. The biologist has remained at headquarters working on the abalone bulletin.

An aerial survey was made on May 14 from Half Moon Bay to Ft. Bragg to observe and estimate the numbers of abalone fishermen, skin divers and clam diggers and others along the coast line during a typical low tide.

Crab: An aerial survey was conducted along the north coast between Cape Mendocino and the California-Oregon border. Trap samples were obtained aboard commercial boats working out of San Francisco, Eureka and Crescent City.

A flight was made on May 16 from Pt. Arena to Oregon border to estimate the numbers of crab traps in this area.

Oysters: An experimental plant of ten bushels of one year old shell oysters was made in Catalina Harbor on January 23, 1960 by the California Oyster Co. Examination on May 7 showed this planting to have been entirely destroyed by rays. Further plantings in this area will be delayed until a standard oyster bed fence of stakes can be built.

Shrimp: Shrimp samples were taken at Crescent City, Ft. Bragg and Bodega Bay. Small shrimp predominated in all areas.

3. Sportfish (DJ F12R)
See regular DJ report attached.

4. Miscellaneous

On May 19 a large gray shark (maneater?) made a swift attack on a 16 year old Aptos girl who was swimming about 100 feet off the beach between Capitola and Watsonville in the northern portion of Monterey Bay. The girl's left leg was so severely slashed that blood transfusions and amputation were necessary. This attack occurred during a period when northwesterly winds had subsided and a tongue of warmer water had pushed into the northern section of Monterey Bay. On the day following the attack (May 20) the Hopkins Marine Station vessel TAGE found that the surface water temperature off Pacific Grove was barely 50° F, whereas the temperature off Santa Cruz was 57° F.

On May 20 James Owen, Aero-Marine Reconinc, discussed the spotting of sharks from the air, following the near fatal attack. Phillips accompanied Owen, in the company's Cessna "140" in a two hour survey along the shore of Monterey Bay. The only shark seen was a basking shark. A number of sea lions and several schools of anchovies were observed.

5. Meetings and Talks

May 1 - Cox addressed the "Deep Angels" skindivers at Hillsborough. He talked on abalone in general and the Department's current program on abalone.

6. Visitors

Pacific Grove

May 3 - Patrick Hazel, Aero-Marine Reconinc (Airplane fish spotters) discussed methods of holding live sardines at Morro Bay for continuous filling of orders for bait.

May 4 - William Peck, USF&WS, Portland, and Elton Bailey, California Fish and Game, Sacramento, met with H. G. Orcutt and Dan Miller, California Fish and Game, Stanford, who were returning from a meeting at Cayucos.

May 5 - S. Ross Hatton, USF&WS, Marketing Service, San Pedro, and David Justice, Ocean Research, Stanford, were here on a "Conelrad" rehearsal. In case of attack, Monterey and Santa Rosa are regional relocation centers for the U. S. Fish and Wildlife Service.

May 6 - William Coleman, Warden at Pt. Lobos State Park, discussed an atypical pinniped that had been observed on the beach. A photo was sent to Dr. Bartholomew, UCLA. He decided that it was a male California sea lion, in an emaciated condition.

May 10 - Horace Cochrane, who started the Monterey Boat Works in 1919, discussed mussel and clam poisoning along the Pacific Coast. Cochrane is returning to British Columbia, where he has constructed a huge log raft to carry auto trailers and their owners on one-month vacation tours (June-September) through the inside passages along the British Columbia coast.

Stanford

May 27 - R. Jones, W. Dillinger, W. Evans of Region 3 and H. Leahy of San Mateo Co. Sportsmen, met with H. Orcutt and K. Cox to discuss programs for San Mateo County fine money expenditures.

B. SOUTHERN CALIFORNIA INVESTIGATIONS

1. Tuna

Industry

General: Large catches of yellowfin tuna are being landed by California purse seiners from Cape San Lucas, Baja California southward to below Champerico and San Jose, Guatemala.

Small schools of bluefin tuna were sighted at the 13-Fathom Spot and Uncle Sam Bank about the middle of the month. Unfavorable conditions and no cooperation from the wily bluefin discouraged all efforts to capture them. Three bluefin weighing 11, 11, and 18 pounds were gill netted on May 11, 1960 off Newport Beach.

Research

Albacore: Preparations were made for the albacore exploratory fishing cruise aboard the N. B. SCOFIELD which departed May 23, 1960. Scientific personnel making this trip were Wm. Craig and Robert Bell, Marine Biologists from the Department and Don Greenland, Oceanographer from the U. S. Bureau of Commercial Fisheries. The vessel is communicating regularly with MRO headquarters as to progress and developments during the cruise. No fish had been caught by month's end.

The U. S. Fish and Wildlife Service vessel BLACK DOUGLAS reported catching an 8-pound albacore on trolling gear on May 27 some 60 miles west of Guadalupe Island.

Bluefin: Final plans for an improved waterfront tuna sampling program have been completed.

Yellowfin tuna and skipjack: Specimens from tagging trips are being identified and listed for publication.

No tags were returned this month.

2. Sportfish

The 1959 annual Report of the California Party Boat Fleet was distributed to approximately 1,200 organizations and

individuals.

More than 200 boats reported fishing during April, 1960. The southern California sportfishing fleet is not yet in full operation but the San Francisco Bay fleet is almost at full strength. Striped bass boats, 13 exclusive and 13 having stripers mixed with other species, reported good catches. Boats fishing marine waters, 28 in all, are waiting for the big salmon runs.

The tags from two California halibut were returned to the laboratory during May. Both returns were from fish tagged at Ensenada earlier this year. Señor Frank Castro, an Ensenada fisherman, sent in his second tag recovery within a two-month period.

The first draft of a bulletin describing the catch, life history and management of the kelp bass was submitted to the Marine Resources editor. A second manuscript, a short analysis of the 1959 annual sportcatch summary, was also submitted as a potential OUTDOOR CALIFORNIA article.

A series of graphs showing a 13-year summary of the total marine sportcatch and a breakdown by species was prepared. All were photographed for color slides and several for black and white prints. Copies of slides will be available to the projects working on particular species.

A series of meetings was held with the Biostatistical Unit to formalize the handling of the new-type party boat logs. Changes in the annual machine reports were pinpointed.

3. Special Projects

SSP-58-1 - Yellowtail Publication: The manuscript was sent to the Conservation-Education Section for final preparation for publication.

SSP-58-2 - Yellowtail Fishery Surveillance: Yellowtail angling "picked up" at the Coronado Islands during the month and was generally good throughout most of southern California.

SSP-58-3 - City of Los Angeles Trawling: Three days, May 12, 13, and 19 were spent trawling in Santa Monica Bay resulting in 20 successful hauls in water 180 to 600 feet deep. Yellowchin sculpins, slender sole, Dover sole and northern midshipmen were the most numerous species.

SSP-58-4 - Inshore Fishes Booklet: Galley proof was checked and returned to the Conservation-Education Section.

SSP-58-10 - Kelp Study Committee: The quarterly meeting of the Kelp Study Committee was held at the laboratory on May 10, 1960. The quarterly progress report of the Kelp Investigations Program, January 1-March 31, 1960, was reviewed and approved.

SSP-58-11 - Mission Bay Survey: Inactive.

SSP-58-12 - Test Block Studies: The last of 12 blocks was picked up from Los Angeles-Long Beach Harbor on May 16 completing the field work on this project.

Two blocks from the "streetcar reef" off Redondo Beach were examined for the Habitat Development Project.

One block from the November, 1959 and three from the April, 1960 series were examined in the laboratory with the following results:

Station 6, Ferry Bldg-November, 1959 - This block had 91 m.l. of organisms of which 34 were tube dwelling polychaetes. Also found were 850 amphipods, 64 free-living polychaetes and 38 tunicates.

Station 2, Fleitz Brothers-April, 1960 - This block supported 5 Teredo, 61 Limnoria, 110 polychaetes, 175 amphipods, 14 large bay mussels and a large colony of bryozoa. Most of the block was eaten by borers and contained many empty teredo tunnels.

Station 3, Quarantine Dock-April, 1960 - This block revealed 37 Teredo, 2,500 Limnoria, 750 polychaetes, 400 amphipods and a large quantity of bryozoa.

Station 9, Dominguez Slough-April, 1960 - This block was covered with slime and dead barnacles. A few polychaetes (one m.l.) were present.

SSP-60-1 - Pismo Clam Census Results: The manuscript was returned from the MRO editor. Suggested changes are in progress.

SSP-60-2 - Sea Lion Census: Inactive, work begins June 6, 1960.

SSP-60-3 - Vertebral Key to Pacific Coast Fishes: Three additional specimens were collected, project otherwise inactive.

SSP-60-4 - Seismic Operations: The Shell Oil Company conducted seismic operations off southern California during the periods May 5-8, and May 12-19. The crews left May 25 and were scheduled to return on June 2. A total of 251 shots (4,218 pounds of explosives) was detonated resulting in 23 separate kills of from 10 to 25,000 fish. All of the powder used was EP-198.

The following fish kills were observed:

	Date	Size of Charge	Species	Number Killed
1.	May 6	41 lbs.	northern anchovy	50
2.	May 7	"	"	10
3.	"	"	" "	300
4.	"	"	" "	50
5.	"	"	" "	75
6.	"	"	" "	25

7.	May 7	82 lbs.	northern anchovy	15
8.	"	"	" "	75
9.	"	41 lbs.	" "	200
10.	"	82 lbs.	" "	800
11.	May 13	"	" "	1,500
12.	"	"	" "	25,000+
13.	May 15	45 lbs.	squarespot rockfish	50
14.	"	90 lbs.	jack mackerel	75
15.	"	"	" "	75
16.	"	"	" "	25
17.	May 17	45 lbs.	Pacific mackerel	10
18.	"	90 lbs.	" "	10
19.	"	"	" "	75
20.	"	"	" "	100
21.	"	"	" "	50
22.	"	"	" "	25
23.	May 18	45 lbs.	" "	100

SSP-60-5 - Bottomfish Ecology: Inactive.

4. Barracuda-White Seabass (DJ F16R)
See regular DJ report attached.

5. Habitat Development (DJ F17R)
See regular DJ report attached.

6. Miscellaneous

On Saturday morning, May 28, the El Segundo Steam Generating Plant heat-treated its intake system to rid same of fouling organisms. During heat-treatment the fish in the sump and intake system were also killed. On-the-spot observations indicated that an estimated 18,800 fish (5 50-gallon drums) were killed. In addition to queenfish, shiner perch and white perch (the most abundant species), 20 other kinds of fish were noted. Anchovies, most abundant during previous heat-treatments, were completely lacking.

Species observed and their estimated numbers and sizes.

	Scientific Name	Common Name	Number	Approx. Size
1.	Triakis semifasciata	Leopard shark	1	24"
2.	Urolophis halleri	Round stingray	1	16"
3.	Torpedo californica	Electric ray	1	24"
4.	Sardinops caerulea	Sardine	15	8-9"
5.	Paralichthys californicus	Calif. halibut	1	7"
6.	Pleuronichthys decurrens	Curlfin turbot	1	9"
7.	Paralabrax clathratus	Kelp bass	200	6-16"
8.	Paralabrax nebulifer	Sand bass	35	12-14"
9.	Sphyraena argentea	Barracuda	6	30-36"
10.	Trachurus symmetricus	Jack mackerel	350	4-7"
11.	Seriphus politus	Queenfish	10,000	3-9"
12.	Cheilotrema saturnum	Black croaker	5	8-10"
13.	Genyonemus lineatus	White croaker	75	8-10"
14.	Hypsurus caryi	Rainbow sea perch	3	5"
15.	Phanerodon furcatus	White sea perch	750	4-10"

16.	Rhacochilus toxotes	Rubberlip perch	40	5-16"
17.	Rhacochilus vacca	Pile perch	175	5-14"
18.	Embiotoca jacksoni	Black perch	125	5-11"
19.	Gymatogaster aggregata	Shiner perch	7,000	3-5"
20.	Medialuna californiensis	Halfmoon	1	7"
21.	Sebastodes sp. (cooked)	Rockfish	2	9"
22.	Porichthys myriaster	Slim midshipmen	15	9-12"
23.	Otophidium scrippsae	Basketweave cuskeel	1	9"

7. Meetings and Talks

May 5-6 - Fitch met with Dave Joseph at Sacramento to draw up plans for a proposed program of marine habitat sampling.

May 10 - Fitch moderated the quarterly meeting of the Kelp Study Committee at CSFL.

May 11 - Young participated in a discussion of fishing effort expended along California coast for a report under preparation by John Cowan.

May 12 - Fitch attended a 1 hour staff meeting.

May 14-16 - Fitch met with other Departmental personnel at Eureka to work out a satisfactory surveillance program of Humboldt Bay. This surveillance to be of various animals and plants that may be affected by operations of the PG&E atomic steam generating plant near Buhne Pt.

May 18 - Fitch attended a legislative meeting of the OFPA wherein they discussed various proposals they desire to submit to the next session of the legislature.

May 24 - Young presented an in-service training program to the office personel of Region 5. Marine operations and organization were under discussion.

May 26 - Fitch attended a half-day staff meeting to discuss budgets and a wide assortment of other items.

8. Visitors

May 2 - John Barry, Region 5, spent some time at CSFL discussing requirements for waste disposal at Goleta Slough.

May 3 - Merton Hinshaw, Director of Santa Ana Museum, stopped at CSFL to announce his appointment as Director of the Santa Ana Museum and to renew acquaintanceship with some of our staff.

May 3 - Ray Cannon spent several hours with various personnel discussing yellowtail, Gulf of California fishing and other items.

May 3 - T. L. Michaud, a skindiver and amateur aquariast, stopped by to have some pikeblennies identified and to discuss capturing marine fish for display purposes.

May 9 - Buzz Owen, commercial abalone fisherman, stopped at the laboratory to discuss abalone hybrids and to show some shells of hybrids he had picked up.

May 10 - Gordon Armstrong, legislative analyst, spent the morning talking to various personnel and receiving a guided tour of the laboratory and vessels.

May 12 - George Kanakoff, paleontologist, L. A. County Museum, visited for an hour to discuss nearshore pollution in southern California and its effect upon marine organisms.

May 20 - Walter Shannon, Director California Department of Fish and Game, visited CSFL.

May 24-25 - George Farnham, illustrious reporter of facts, Conservation-Education Section, spent two days at the laboratory going over MRO's plans for publications (technical and other) during the next two fiscal years. Everyone profited by this visit and hope more of the same type can be held in the future.

May 27 - Gil Gran, scallop specialist, spent several hours discussing pectens with various staff members and identifying some of the puzzlers we have collected recently.

May 27 - R. S. Croker, world traveler, peacemaker, etc. visited the laboratory and told of his recent expedition to the wilds of Switzerland and other continental tourist traps.

C. PELAGIC FISH INVESTIGATIONS

1. Industry

General: Southern California mackerel landings were poor. Most of the fishing fleet remained at the dock because the drop in price last month from $50 to $35 per ton coupled with a scarcity of mackerel made it unprofitable to fish.

At Monterey mackerel landings were also poor. The squid fishery which generally develops about this time of the year has failed to materialize due to a scarcity on the historic Monterey squid grounds.

Northwest winds were not as persistant at Monterey as they were last month, although they still interferred somewhat with fishing.

Sardine: Cannery season closed. At San Pedro landings at the fresh fish markets from May 1-24 were 31 tons.

Pacific mackerel: At San Pedro cannery landings totaled 70 tons; all was used in pet food. About 36 tons were delivered to fresh fish markets. Catches were made off San Pedro and Santa Catalina Island. By comparison cannery landings for May 1959 were 62 tons.

Jack mackerel: At San Pedro cannery landings totaled 278 tons. Fourteen tons were landed at the fresh fish markets. Most catches were made off San Pedro, Pt. Dume, and Santa Catalina Island.

In Monterey Bay, 35 tons of jack mackerel were landed at Moss Landing. Some of this was trucked up from Ventura County.

Anchovies: Landings at the fresh fish markets from May 1-24 were 96 tons.

Live bait: Los Angeles Harbor boats were successful in obtaining small anchovies but Santa Monica Bay boats experienced some difficulty. A few large anchovies (to 140 mm) were present in the hauls but most fish were less than two years of age.

Anchovies were not plentiful at San Diego and reports from Morro Bay early in the month indicate that bait is present in deep water but is not available to bait boats.

With the exception of San Diego, where some were taken, no significant amount of sardines has been reported.

2. Research

Sardine: The M/V ALASKA returned May 2 from an experimental cruise (60A4). The purpose of the cruise was to test the relative fish attraction qualities of different colored lights and the effectiveness of different types of collecting gear. Green light was more effective in positioning the fish so that

they could be caught in the blanket net. However, the number of tests were not sufficient to be conclusive. The deep sampling gill net worked effectively when fish were wild and too deep for the blanket net.

At Monterey, two samples were obtained from the markets. These consisted of large fish; most, well over 220 mm (standard length). Female sardines continued to have ripening eggs; some, approaching 0.7 mm in diameter.

Pacific mackerel: One sample of the commercial catch was obtained. The sample consisted primarily of one and two year old fish. Work on catch summary data continued. Working up of the data for the age composition paper was started. A paper on a food study of the Pacific mackerel was also begun.

Jack mackerel: Three samples of the commercial catch were obtained. Samples consisted primarily of one and two year old fish. Work oncatch summary data continued.

Aerial survey: Five days were spent in scouting the coast from the Mexican border to the Russian River. High winds north of Point Conception made observations in central California difficult and no fish schools were found in the area. Conditions were good in southern California but few schools were seen. One school group (95 small spots) was found in the Ventura-Hueneme area and 11 sardine schools were seen off Point Vicente.

3. Meetings

May 16-17 - Radovich attended CalCOFI meeting at La Jolla.

May 26 - Radovich attended MRO staff meeting.

D. BIOSTATISTICS

1. Data Processing

Regular Reports: February 1960 statistical reports were completed and distributed.

March 1960 Marine Sportcatch reports were prepared and the mimeographed summary was mailed to party boat operators and others.

April 1960 Processor's Reports and Cannery Check runs were prepared. The monthly tuna letter was prepared and mailed.

Special Reports: A table showing tuna landings and values from 1951 through 1959 was prepared for John Seapin.

Smelt landings at Bodega Bay from 1950 through 1959 were summarized for Region 3.

Albacore Boat Effort Study reports I, II, III were prepared for further mathematical work by the Technical Assistance group.

A report showing individuals who have had "Train the Trainer" training was prepared for the departmental training officer.

The 1959 Game Management Branch hunting survey was completely processed during the month. Completed reports were transmitted to Daly Gilsenan.

Work in Progress: The shrimp reports for the Shellfish Investigation are nearly completed. This job has involved certain computations beyond the capabilities of the Biostatistics Unit and has therefore been partially processed with outside facilities.

March 1960 fish receipts have been checked and key punched. Reports are being run. Editing of April 1960 market fish receipts and May cannery receipts is progressing. April 1960 marine sport catch records are being keypunched.

Many new commercial licenses and boat registrations have been processed since the new license season began April 1. The volume is now decreasing slightly.

Annual IBM reports showing pounds and price per species in each Statistical Area are being prepared. This is the first of the annual IBM reports run each summer for the preceding year.

2. Technical Assistance and Biometrical Analysis

Kelp Bass Yield/Recruit: A report describing the methods used to obtain yield/recruit for ages of recruitment 1 through 12 years and the results of the study was completed. This job was requested by the Southern California Sportfish Project.

Analysis of the Accuracy of Preliminary Landing Figures: A report was distributed describing a study of the accuracy of circular catch figures as compared with the final figures reported in the bulletin.

Sampling Plan for Pacific Mackerel: Work was begun on design of a stratified sampling plan for estimating age composition of the Pacific mackerel catch. This job was requested by Pelagic Fish Investigation.

Albacore Boat Relative Fishing Power: A successful trial run of the 709 computer program was obtained, and the albacore fleet catch data for the year 1958, consisting of approximately 4,000 punched cards, was submitted.

Fortran Program for English Sole Weight-Length Regression: A computer program for the 709 was designed to obtain regression lines by log transformation on weight-length data of English sole. The program also performs an analysis of covariance on the data. This job is being done for the Trawl Investigation, but a general program was designed which will handle observations on 5,000 fish. In addition to the weight-length program, sample sizes required to estimate the mean length of small, medium and large fish, with confidence interval width of 3% were calculated.

Miscellaneous: Computations were performed on some items of data that could not be handled by the 604 computer, to complete special tabulated reports on shrimp catch/effort. Checking of calculations for a growth study was done at the request of the Tuna Investigation.

Advice on design of a sampling plan for albacore was given to members of the Tuna Investigation.

3. Miscellaneous

Norman Abramson, Joyce Collins, and Ed Greenhood attended a demonstration of the IBM 1620 electronic computer at the Los Angeles IBM center.

John Cowan, a game manager on loan to another agency, met with Ed Greenhood, Norm Abramson, Jim Ryan and members of the Sport-fish Project to form a basis for estimating the number of anglers participating in the various types of fishing along our coast.

The 1957-1958 Catch Bulletin was received from the State Printer.

Marvin Newberry transferred in grade to the Accounting Section position formerly held by Adelbert Dutcher.

E. VESSELS

1. N. B. SCOFIELD

On the 4th the N. B. SCOFIELD returned to San Pedro after completing a 30-day shrimp survey cruise (60S2) off the waters of southern, central and northern California. On the 23rd the vessel sailed on the albacore exploratory cruise (60S3) covering the offshore area of the eastern north Pacific Ocean between central Baja California and northern California in an attempt to intercept and determine the migratory route of albacore as they approach the coast. She was engaged in this activity the balance of the month.

2. ALASKA

The ALASKA returned to San Pedro on the 2nd, from a 20-day pelagic fish study off the coast of southern California (cruise 60A4). On the 15th she sailed again for pelagic fish studies in the same general area (cruise 60A5). The vessel engaged in the pelagic fish studies the balance of the month.

3. NAUTILUS

After completing all repairs and installing new depth recorder, the vessel sailed for San Francisco Bay on the 26th to conduct salmon studies in the Delta area (cruise 60N4). She engaged in this activity the balance of the month.

4. MOLLUSK

The MOLLUSK was engaged in abalone work in the vicinity of Morro Bay the entire month.

F. LIBRARY

1. General

Library activities during May were largely concerned with book ordering, preparing books for the bindry, and sending library exchanges Fish Bulletin 108, The Commercial Fish Catch of California for the Years 1957 and 1958. The two booklets, Offshore Fishes of California by John E. Fitch and A Field Guide to Common Ocean Sport Fishes of California, Pt. 1, by Daniel J. Miller, were also mailed to exchanges.

Library accessions: 1100

2. Requests Processed

Outside references: 32

Visitors: 96

Phone requests: 59

Letters: 54

Publications distributed: 800
(mailed to exchanges 6,600)

Photocopy: 40 pages

Films: 13 showings; viewed by 550

3. Meetings

May 7 - Special Libraries Association, San Diego meeting.

4. Visitors

May 18 - Dr. Gilbert Carter and wife, U. S. National Museum.

5. New Books, selected list

Bellman, Richard
1960. Introduction to matrix analysis. New York, McGraw-Hill Book Co., 328 p.

Cattell, Jaques, ed.
1960. American men of science. 10th ed. A-E. Tempe, Arizona, The Jacques Cattell Press, 1126.

Defont, Albert
1958. Ebb and flow: Tides of the earth, air and water. Ann Arbor, University of Michigan Press, 121 p.

Martin, J. H., editor
1959. Radiation biology. Proceedings of the second Australian Conference on Radiation Biology, University of Melbourne, 1958. New York, Academic Press, 304 p.

Needham, George Herbert
1958. The practical use of the microscope, including photomicrography. Springfield, Illinois, Charles C. Thomas, Pub., 493 p.

Nichols, John T.
1943. The fresh water fishes of China. New York, American Museum of Natural History, 322 p.

Oceanic observations of the Pacific: 1950. Berkeley
1960. University of California Press, 508 p.

Waterman, Talbot H., ed.
1960. The physiology of crustacea. Vol. 1. Metabolism and growth. New York, Academic Press, 670 p.

G. ACTIVITIES OF MARINE RESOURCES MANAGER

May 2 - Conferred with Donald Johnson, Area Director, Bureau of Commercial Fisheries, regarding Department's participation at the industry meeting being called by the federal government.

May 3 - Conferred with various staff members at Sacramento regarding entry standards for fishery biologists.

May 4-5 - Meeting to discuss five year capital outlay program in Sacramento.

May 9 - Routine visit Stanford laboratory.

May 10-11 - Lodi meeting regarding personnel.

May 13 - Served on Qualifications Appraisal Board for Vessel Operations Supervisor, Los Angeles.

May 16-17 - Regular monthly meetings, Sacramento.

May 18 - Routine visit at the Stanford office. The primary concern on this visit was estimating trends of shrimp catches for area B-1.

May 20 - Mr. Shannon spent the morning at the Laboratory.

May 23 - Conference with Mr. Johnson, Bureau of Commerical Fisheries, regarding the sardine and tuna programs.

May 24 - Mr. David Olafsson, Director of Fisheries for the Republic of Iceland, visited the Laboratory.

May 25 - Conferred at length with George Farnham and John Fitch regarding MRO publication schedule. A tentative schedule through 1961-62 was developed.

May 26 - Regular MRO staff meeting, Terminal Island.

Phil M. Roedel
Marine Resources Manager

Attach (3)
MRO TI/6.1.60/45

DINGELL-JOHNSON PROJECT F-12-R-6

NORTHERN CALIFORNIA MARINE SPORT FISH SURVEY

REPORT FOR THE MONTH OF MAY, 1960

Report not received.

DINGELL-JOHNSON PROJECT F-16-R-3

BARRACUDA AND WHITE SEABASS MANAGEMENT STUDY

REPORT FOR THE MONTH OF MAY, 1960

Barracuda fishing during the month was good. The sportfishing party boats made their best catches in Santa Monica Bay, including Rocky Point. The perennial interest and continued success in yellowtail fishing at San Diego prevented a testing of barracuda abundance in that area. Although the current season's fishing is good, it is not, apparently, attaining last year's record-breaking rate.

Commercial landings of barracuda from the Santa Monica-San Pedro region were generally steady throughout the month, peaking twice; May 11-12 and May 19-21.

White seabass fishing, both sport and commercial continued light and spotty, a situation similar to last year.

Research was a continuation of last month's activities, report writing, development of scale reading equipment and sampling of the sport catch.

A report on the construction and use of a mechanical net puller, as an aid in attaining samples of fish, was completed and submitted to the Marine Resources Operations editor. Work on a barracuda tagging paper continued.

Development of suitable scale-reading apparatus continued with the acquisition of a dimmer to control light intensity and with additional scale reading trials.

Only one barracuda tag was received this month. The fish, at liberty exactly one year, was recaptured two miles from point of release. The indicated growth increment was very small, only one-half inch, considerably below the rate shown by previous studies. Since the barracuda was in good condition, as was the tag wound, the most probable reason for the discrepancy appears to be an erroneous measurement at time of tagging.

Interviews for seasonal aids for the coming summer were conducted early in the month. Commitments from four people were obtained, two women to mount scales for age determinations and two men to assist in the field sampling of the sport and commercial catch.

Leo Pinkas spoke to the Santa Monica Nature Club on May 6th, about 60 people were present.

Emil Smith, Marine Biologist II, left the project on May 31 to accept a promotion as Biologist III with Water Projects, Sacramento. The position will be left vacant in accord with budgetary planning for fiscal 1960-61.

DINGELL-JOHNSON PROJECT F-17-R-3

OCEAN FISH HABITAT DEVELOPMENT

REPORT FOR THE MONTH OF MAY, 1960

Paradise Cove

The water was very murky, with visibility generally less than six feet.

This month's test block showed a heavy encrustation of bryozoans and algae.

Kelp plants on the reef reach the surface and trail out in a canopy for about 25 feet.

Some plants reach only about 35 feet above the cars and then, for an unknown reason, head downward again until they trail on the sandy bottom.

Some of the kelp plants show signs of deterioration, possibly due to warming water which is now up to 63° F on the surface. The bed as a whole looks healthy however.

Redondo Beach-Palos Verdes

All of the wood in the streetcars is heavily infested with Teredos, and all cars show the effects of boring. The front end of one car is completely caved in, and all have lost their interior partitions. No kelp was found on the reef. Only about 10 percent of this month's test block was left, the rest having been rasped away.

Water clarity was in excess of 60 feet near the surface. Heavy plankton concentrations were noticed at 30 feet, where there was also an abrupt temperature change. The temperature at 20 feet was 63° F, 59° F at 30 feet.

Standard-Humble Oil Platform - Summerland

Large growths of bryozoans were attached to the tower giving it a shaggy-dog look. Rock scallops were hidden from view beneath this growth.

The surge was quite heavy and there was a great deal of turbidity in the water. Observations near the surface were hampered by both the surge and the suspended material. Below the thermocline, at 40 feet, the water was much clearer. At the 80-foot level the turbidity again began to intensify.

The survey of the site where Standard will build a new platform revealed a bottom of soft olive green, silty, sand overlying a harder, packed clay. The soft material appeared to be about 6-8 inches deep. No fish were observed during this dive. Between

45 and 80 feet (water temperatures of 53-54° F) beneath the surface large concentrations of plankton were observed. The concentrations were so thick that the divers were unable to see each other when separated by only three feet. The plankton concentrations at other depths were not nearly as thick.

Preliminary examination of the test blocks removed this month showed heavy bryozoan growth on the mid-water block. The bottom block was coated with mud, possibly from the bottom being stirred up by ocean conditions or possibly from the drilling operation. There is no outward sign of teredo infestation on these blocks.

A moderate-sized school of jack mackerel, 3,000 individuals, was noted under the tower. Many of the kelp bass and sand bass were large fish, 15-20 inches in length.

New residents on the tower were one Hexagrammus decagrammus, the greenling seatrout, and an unidentified cottid, about three inches long.

About 200 bocaccio (rockfish) were observed at the 40-foot level. Many were 12-14 inches long, with some reaching about 16 inches. In previous dives these larger fish have been observed only near the bottom.

No sea urchins were observed. The mussels and kelp scallops appear to be increasing in both size and number.

One small, heavily-grazed kelp plant, about 22 inches long, was observed trying to survive at the 25-foot level on the East caisson.

Richfield Oil Island - Rincon

Large schools of yellowtail rockfish were observed near the kelp canopy. One very small 3½-inch sheephead was observed. This fish was bright orange with two chocolate brown spots at the base of the dorsal and one at the base of the anal fin. The pelvic and pectoral fins were a brilliant lemon yellow. This coloration is in contrast to the brick red and black found in the adults.

The kelp bed around the island appears to be improving steadily. Many new plants from 3 to 15 inches in length were noted. The total canopy area is about double that observed during the March survey.

Kelp measurements were not made during this survey because the tagged kelp plants were not found. Apparently the storms prior to the check dive carried away the plants or the tags.

A "delousing station" was observed in operation. A kelp perch was noticed cleaning a kelp bass. The entire operation proceeded for a period of about five minutes. During this time the two fish circled an area approximately 20 feet in diameter. The perch cleaned the sides and the head of the bass.

The divers examined the growths on the causeway pilings and found heavy concentrations of mussels and barnacles from the surface to a depth of about 10 feet. Many small kelp plants were attached to the pilings and the various shells. Below 10 feet, the growth lessened rapidly until at 30 feet only a few barnacles and bryozoans were noted.

Two species of sea urchin, the purple and the giant red, are inhabiting the rocky island. The purple sea urchin outnumbers the red about 5,000 to 1.

Many small rock scallops were observed. These were all 1½ to 2 inches in diameter.

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Sacramento, at month's end, was processing purchase orders, service agreements, etc. for the Wildlife Conservation Board artificial reef project.

Carlisle gave a talk on the present and future of Ocean Habitat Development in California to about 500 persons at the Annual Southgate Sportsman's Forum on May 19.

Earl Ebert, was appointed Aquatic Biologist I at month's end, replacing Jeremy Sexsmith, who is resigning from State service to accept a position with the state of Alaska.

DINGELL-JOHNSON PROJECT F-17-R 3

OCEAN FISH HABITAT DEVELOPMENT

Report for the Month of May, 1960

AREA	Redondo-Palos Verdes	Paradise Cove	Richfield Rincon	Standard Humble
DATE	5-31-60	5-31-60	5-9-60	5-9 & 5-17-60
WEATHER	Overcast-hazy	Overcast-hazy	Clear	Clear-windy
Air Temp.	65° F ±	65° F ±	70° F	68° F
WATER				
Clarity	25-60 feet	0-6 feet	0-15 feet Murky below 25 ft.	0-15 feet visibility. Very dirty on bottom
Surge	Slight	Slight		Moderate to heavy
Temperature			Even temp. drop	Abrupt change at 40 feet
Surface	65° F	63° F	61° F	61° F
Bottom	56° F	57° F	58° F	52° F
Depth	60 feet	50 feet	40 feet	105 feet
FISHES OBSERVED				
Families	9	8	7	6
Species	14	18	17	16
Total No.	894	1058	2165	9225
MAJOR SPECIES BY PERCENT		Small school of anchovies 3000 individuals		
#1	Gobiidae 45.9%	Embiotocidae 61.0%	Serranidae 24%	Embiotocidae 46%
#2	Embiotocidae 39.7%	Serranidae 14.2%	Scorpaenidae 24%	Carangidae 32%
#3	Serranidae 3.9%	Labridae 14.1%	Pomacentridae 23%	Scorpaenidae 13%
#4	Pomacentridae 3.9%	All others 10.8%	Embiotocidae 19%	All others 9%
#5	All others 6.6%		Others 10%	
#6				

REMARKS: